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NEW SPECIES AND A NEW GENUS OF NORTH AMERICAN
DELTOCEPHALINE LEAFHOPPERS (HEMIPTERA :
HOMOPTERA).

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The descriptions which follow are those of apparently new forms which the writer has encountered in the course of his work during the past year and a half. Since representatives of nearly all the species of the genus are available, a key to *Sanctanus* Ball is included.

Sanctanus tectus, n. sp.

(Pl. 13, Figs. A, B, C.)

Similar to *fasciatus* in size but with a more angular vertex and less brown coloration. Color and color pattern resembling those of *Deltocephalus arundineus*. Length 4-4.5 mm.

Color.—Face pale, with three transverse black bands, one across the apex of the clypeus, one below the antennae, and one below the margin of the vertex. Vertex creamy, with a pair of small black spots at the apex and a large irregularly shaped pair on the disk next the ocelli, the latter always connected with the black band on the front, the former usually so. A pair of small dark spots on posterior margin of vertex. Pronotum with a rectangular black spot on the anterior margin medially and an irregular spot behind each eye, disk brownish iridescent, margins irregularly pale. Elytra with basal portions milky, a fuscous spot on disk of each clavus and three fuscous spots on each costal margin, one next the milky area, one before the first nervure to costa, and one in outer apical cell; veins milky to yellowish, bordered with fuscous, cells embrowned except along costal margins. Tips of male plates black.

Structure.—Vertex similar to that of *fusconotatus* but broader and more sharply angled, more produced than that of *sanctus*, margins rounded to front. Elytra broad and flaring, venation typical of the genus.

Genitalia.—Last ventral segment of female with a broad, blunt, median tooth which is attached only basally to remainder of segment. Segment each side of tooth roughly truncate posteriorly. Male plates broad basally, tapering to narrow tips, plates together triangular.

The markings and genital characters will distinguish this species from others in the genus.

Holotype male and allotype female from Deep Creek, Virginia, collected from *Arundinaria tecta* by the writer, Sept. 9, 1933. Paratypes, numerous specimens with the above data and others collected at the same locality by L. D. Anderson on Oct. 8 and Oct. 31, 1933. The writer has also examined specimens from Florence, South Carolina, collected in May, September, and October by O. L. Cartwright and sent to the writer for study by J. O. Pepper of the Pennsylvania Department of Agriculture. Types in collection of United States National Museum (Cat. No. 50369), paratypes in collections of L. D. Anderson and J. O. Pepper.

KEY TO THE NORTH AMERICAN SPECIES OF SANCTANUS¹

1. Ground color pale salmon red with a transverse, black-margined white band at the apex of the clavus and an orbicular black spot in the outer apical cell of each elytron.....*orbiculatus* Ball
Color not as above.....2
2. (1) Dorsal color pattern consisting of brown or yellowish brown and ivory. Brownish area on disk of corium not broken by broad white or pale veins.....5
Dorsal color pattern lacking in distinct brown and ivory contrasts. Markings on corium consisting mostly of brownish intracellular infuscations which are darker around the margins. Veins on disk of corium broad and pale.....3
3. (2) Upper one half of face uniformly black, clypeus and portions of adjacent sclerites unmarked.....4
Face not as above, black marks consisting of broken transverse bands, one of which crosses the clypeus.....*tectus*, n. sp.
4. (3) Markings on disc of vertex fuscous.....*fusconotatus* Osborn²
Markings on disc of vertex pale orange.....*aestuarium* Del. & S.²
5. (2) Face with distinct transverse black bands.....6
Face without distinct transverse black bands.....7
6. (5) Median length of vertex equal to or shorter than one half its width at anterior margin of eyes. Dorsal markings usually dark brown. Length 4.5-5.25 mm.....*cruciatus* Osborn
Median length of vertex distinctly greater than one half its width at anterior margin of eyes. Dorsal markings usually pale brown. Length 4-4.5 mm.....*fasciatus* Osborn
7. (5) Elytra apically without reticulations, vertex angled.....*sanctus* Say
Elytra apically with numerous reticulations, vertex bluntly rounded....
limicolus Osborn

¹ The writer has not examined specimens of *eburneus* DeLong. It appears to be related to *fusconotatus* and *tectus*.

² The writer believes that *fusconotatus* and *aestuarium* are extremes of a single species in which the marks on the vertex are variable.

Hebecephalus scriptanus, n. sp.

(Pl. 13, Figs. D, E.)

Related to *labeculus* and *blandus* but differing from both in having the female genital segment produced and unnotched. Length of female 2.75–3 mm.

Color.—Ground color cinereous. Frontal sutures brown to fuscous, frons with broken transverse brown bars basally and an irregular brown spot medially. Vertex with a brown spot next each eye and an elongate brown B or figure 8 mark on each side of median line, this sometimes interrupted along anterior margin of vertex. Pronotum with three pairs of longitudinal brown stripes, these sometimes nearly obsolete. Scutellum with two pairs of narrow longitudinal brown lines. Elytra grayish subhyaline, margins of cells embrowned.

Structure.—Vertex bluntly right angled, broader and shorter than in *bocanus*, about as in *labeculus*, distinctly longer than pronotum. Elytra about equal to abdomen in length, venation typical of the genus.

Genitalia.—Last ventral segment of female with lateral margins short, posterior margin triangularly produced.

Holotype female from Mustang Mt., Ariz., June 12, 1933, collected by the writer. Paratypes, 6 females from the above locality, 3 taken on June 12 and 3 on June 20, by R. H. Beamer and the writer. Type and paratypes in United States National Museum collection (Cat. No. 50370), paratypes in collection of University of Kansas.

Laevicephalus aridus, n. sp.

(Pl. 13, Figs. F, G.)

Similar in size and coloration to *monticolus* (Gillette and Baker), but with the vertex more bluntly angled and the female genital segment without a median tooth on posterior margin. Length 2.75–3 mm.

Color.—Pale greenish white. Front with faint brownish bars; vertex with faint brownish dashes each side of apex, these sometimes extended into narrowing stripes across pronotum. Ocelli black, eyes green.

Structure.—Vertex bluntly angled in female, equalling pronotum in length, more rounded in male and distinctly shorter than pronotum. Elytra extending well beyond tip of abdomen, venation irregular, outer antepical cell often small or nearly absent.

Genitalia.—Last ventral segment of female comparatively long, lateral margins short, lateral angles rounded, median portion produced and narrowing, with sides of produced portion sinuate, posterior margin truncate or faintly bilobed, often appearing distinctly incised. Male plates broad basally, tapering sharply to acute tips which reach slightly over half way to apex of spiny pygofer.

This species is best separated from all others of the genus except *convergens* by the genital characters, while from that species it may be separated by the smaller size and blunter head.

Holotype female, allotype male, and 1 female paratype from Copper, Ariz., collected by the writer June 30, 1933. Types in collection of the United States National Museum (Cat. No. 50371).

***Laevicephalus bocanus*, n. sp.**

(Pl. 13, Figs. H, I.)

Resembling *labeculus* but smaller, more slender, and with a more produced and angled vertex. Length of female 2.75 mm.

Color.—Ground color pale creamy white to gray. Face slightly embrowned; dorsum with a light brown longitudinal vitta on each side extending from anterior margin of vertex to anterior margin of scutellum, narrowing posteriorly. Pronotum with an additional faint longitudinal vitta behind each eye. Elytra grayish subhyaline, margins of cells embrowned.

Structure.—Vertex produced and pointed, length nearly equal to greatest width and distinctly greater than length of pronotum. Elytra about equalling abdomen in length, venation typical of the genus.

Genitalia.—Last ventral segment of female with lateral margins short, median portion well produced and narrowing posteriorly, apex with a small notch.

Described from 2 females, holotype and paratype, collected at Boca Chica, Texas, May 30, 1933, by the writer and Mrs. Oman. Types in the collection of the United States National Museum (Cat. No. 50372).

***Deltocephalus laredanus*, n. sp.**

(Pl. 13, Figs. J.—K.)

Pale yellowish brown with four fuscous spots on the anterior margin of the vertex and a cream colored stripe dorsally. More closely related to several South American species than to the known North American forms. Length 3 mm.

Color.—General ground color brownish testaceous. Face unmarked except for a small fuscous dot below each ocellus. Dorsum with a cream or ivory colored stripe extending from apex of vertex to apex of scutellum, widening slightly posteriorly, and continued to apex of claval sutures by the cream colored commissural margins of the elytra. Vertex with a triangular fuscous spot on the anterior margin each side of the apex next the median stripe and another irregular and often indistinct one next ocellus. Pronotum with lateral margins narrowly creamy and traces of two creamy longitudinal stripes each side of the median stripe. Median stripe usually margined with fuscous on scutellum. Elytra subhyaline, veins whitish, often faintly margined with fuscous.

Structure.—Vertex well produced and bluntly angled, slightly shorter than pronotum in length. Elytra extending well beyond tip of abdomen, venation typical deltocephaloid.

Genitalia.—Last ventral segment of female narrowed posteriorly, exposing underlying membranes, posterior margin broadly and shallowly excavated, with a small median tooth. Male plates small, together roughly triangular, with lateral margins concave and tips blunt.

Holotype male, allotype female, and numerous paratypes of both sexes collected by the writer near Laredo, Texas, June 3,

1933. Also 1 male paratype labeled Austin, Texas, May, 1905, in collection of E. D. Ball. Types in the collection of the United States National Museum (Cat. No. 50373), paratypes in collection of E. D. Ball.

Genus **BALDULUS**, new genus.

Small, elongate leafhoppers, related to *Cicadula* in the characters of the venation of the elytra and wings, but with the elytra long and slender as in *Balclutha*, the head narrow and produced and angled as in *Deltocephalus*. Also resembling *Cicadulina* but with a more produced vertex and with one more apical cell in both elytra and wings.

Face elongate, triangular, margin of genae slightly sinuate below the eyes. Vertex triangularly produced and rounding to the front, median length slightly less than length of pronotum. Head, including eyes, equal to pronotum in width. Elytra elongate and slender, with two antepical and four apical cells and distinct appendices. Wings with three apical cells.

In the species known to the writer the color is pale yellowish with a black spot on the margin of vertex, above or sometimes slightly anterior to each ocellus. Markings of pronotum and scutellum consisting of more or less distinct longitudinal vittae of pale yellowish brown to brown.

Type of the genus, *Baldulus montanus*, n. sp.

This genus will also include *Deltocephalus elimatus* Ball³ from Mexico, which the writer believes to be congeneric with *B. montanus* in spite of its peculiar, elongate genitalia in both sexes (Pl. 13, Figs. N, O,) and slightly shorter vertex.

Baldulus montanus, n. sp.

(Pl. 13, Figs. L, M.)

Smaller than *elimatus*, with a more angled vertex and darker markings on vertex and pronotum. Length 3.25–3.5 mm.

Color.—General ground color pale yellow. Face unmarked except for a small fuscous dot below each ocellus, these sometimes obsolete. Vertex with a small fuscous spot at apex, a larger, black, triangular pair above and a little anterior to the ocelli, a fuscous quadrangular pair on the posterior margin next the eyes, and a faint brown pair between these. In pale specimens the spot at the apex and the inner basal pair may be obsolete. Pronotum and scutellum with a longitudinal brownish-fuscous vitta each side of the median line, emphasizing a broad creamy median stripe. Traces of two additional brownish vittae laterally on pronotum. Elytra with veins and commissural line to apices of clavi white, cells embrowned except along costa and sometimes apically.

Structure.—Vertex nearly twice as long medially as next the eyes, median length slightly less than length of pronotum. Pronotum truncate posteriorly, median length about one half the width.

Genitalia.—Last ventral segment of female about one and one half times as

³ Can. Ent., vol. 32, p. 345, 1900.

long as preceding segment, posterior margin truncate or slightly sinuate. Male valve broad, bluntly angled posteriorly. Male plates together triangular, apices terminating in divergent ligulate processes about one half as long as the rest of the plates. Apex of aedeagus usually visible between tips of plates. Aedeagus with shaft long and nearly straight, extending posteriorly; apex curved upward and with two pairs of processes at tip, one pair long and slender and extending anteriorly along the shaft, the other pair curved first upward and then anteriorly, forked near base, the upper fork crooked and shorter than the lower fork.

Holotype male, allotype female, and numerous paratypes of both sexes from the Santa Rita Mts., Ariz., collected June 27, 1933, by the writer. Other paratypes from the same locality; 20 specimens collected June 26, 1933, by R. H. Beamer, and 20 specimens collected July 6, 1933, by E. D. Ball. Holotype, allotype, and paratypes in the United States National Museum collection (Cat. No. 50374), paratypes in the collection of E. D. Ball and the University of Kansas.

EXPLANATION OF PLATE.

A, head and thorax, B, male genitalia, and C, female genitalia of *Sanctanus tectus*; D, head and thorax, and E, female genitalia of *Hebecephalus scriptanus*; F, head and thorax, and G, male genitalia of *Laevicephalus aridus*; H, female genitalia, and I, head and thorax of *L. bocanus*; J, male genitalia, and K, head and thorax of *Deltocephalus laredanus*; L, head and thorax, and M, male genitalia of *Baldulus montanus*; N, female genitalia, and O, male genitalia of *B. elimatus* Ball. All drawings show an enlargement of approximately 30 diameters.

A NOTE ON THE DISTRIBUTION OF *EUMERUS NARCISSI*
SMITH (DIPTERA : SYRPHIDAE)

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In a previous publication (A Comparative Study of the Species of *Eumerus* known as the Lesser Bulb Flies. Monthly Bul. Calif. Dept. Agr. Vol. XXII, Nos. 2-3, Feb.-March, 1933, p. 147) the distribution of *Eumerus narcissi* Smith in the United States was mentioned as being confined to California and Oregon. The species is quite common in bulb districts in California, but only one specimen had been found in Oregon, that near Portland at a large bulb ranch. In 1931 one pair were collected in a greenhouse on Long Island, New York, by Blanton and Spruijt (The Species of *Eumerus* on Long Island. Jour. Econ. Ent. Vol. 26, No. 2, Apr. 1933, p. 515). During the past summer a single male was collected at Morning Sun, Iowa, by Helen Latta, from flowers near a bed of naturalized daffodils. Future collections in the eastern and southern bulb growing sections will probably reveal more occurrences of this species.